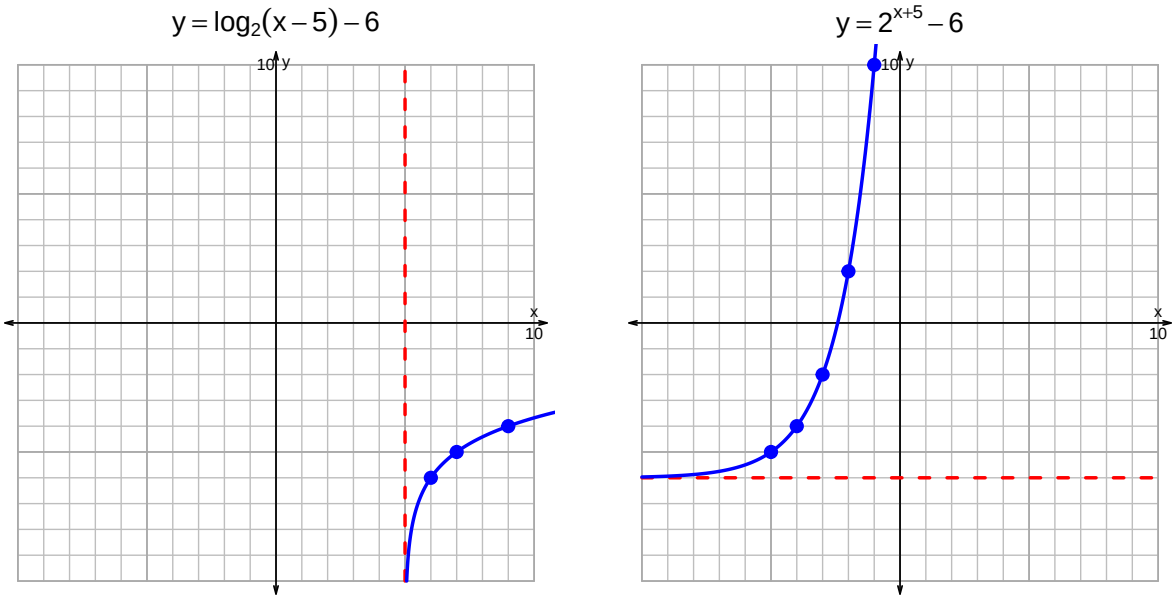
Name: Date:

s18quiz: EXP LOG (SLTN v247)

1. Graph $y = \log_2(x-5) - 6$ and $y = 2^{x+5} - 6$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-29 = \left(\frac{-7}{3}\right) \cdot 2^{-5t/4}$$

Divide both sides by $\frac{-7}{3}$.

$$\frac{29 \cdot 3}{7} = 2^{-5t/4}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{29 \cdot 3}{7}\right) = \frac{-5t}{4}$$

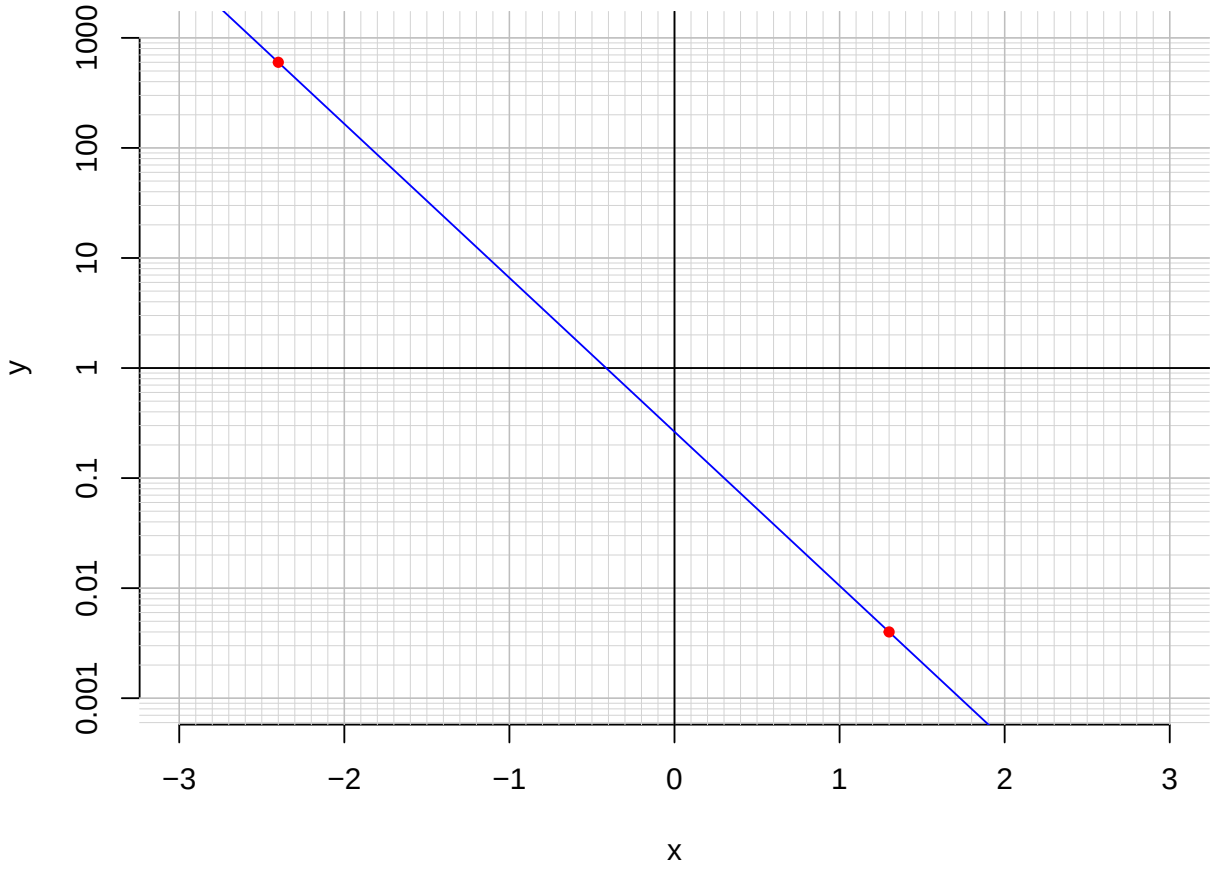
Divide both sides by $\frac{-5}{4}$.

$$\frac{-4}{5} \cdot \log_2\left(\frac{29 \cdot 3}{7}\right) = t$$

Switch sides.

$$t = \frac{-4}{5} \cdot \log_2\left(\frac{29 \cdot 3}{7}\right)$$

3. An exponential function $f(x) = 0.263 \cdot e^{-3.22x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(1.3)$.

$$f(1.3) = 0.004$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{3.22} \cdot \ln\left(\frac{x}{0.263}\right)$$

c. Using the plot above, evaluate $f^{-1}(600)$.

$$f^{-1}(600) = -2.4$$